

**NOVEMBER/DECEMBER 2024**  
**CBC52/FBC52 — MOLECULAR BIOLOGY**

Time : Three hours

Maximum : 75 marks



**SECTION A — (10 × 2 = 20 marks)**

Answer ALL the questions.

- Write the genetic material in bacteria.
2. Short note on conservative replication.
  3. What is the process called that converts the genetic information stored in DNA to an RNA copy?
  4. Outline the two function of RNA polymerase.
  5. Define translation.
  6. State about start and stop codon.
  7. Why should gene expression be regulated?
  8. Define recombination.
  9. Define DNA repair.
  10. Name of three stop codons.



SECTION B — ( $5 \times 5 = 25$  marks)

Answer ALL the questions.

11. (a) Explain how Griffith made use of streptococcus pneumoniae to prove the presence of transforming principle in bacteria.

Or

- (b) List the enzymes of replication with its functions.

12. (a) Give an account on the Rho protein to explain Rho dependent termination.

Or

- (b) Analyse how nascent rRNA is modified to mature rRNA.

13. (a) Organise the steps involved in translation. Explain how amino acid is activated?

Or

- (b) Examine protein targeting.

14. (a) Identify the structural organization of Operon. List the types of gene regulation.

Or

- (b) Simplify the process of catabolite repression by glucose.

15. (a) Select substitution and frameshift mutation and discuss.

Or

- (b) Simplify the various types of aneuploidy.

SECTION C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

Explain transduction in detail.

17. Explain the mechanism of transcription in prokaryotes.

18. Criticize on the salient features of genetic code.

19. Discuss about trp operon.

20. Elaborate on mismatch repair mechanism.

